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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
WONG, EDNA	

ART UNIT	PAPER NUMBER
1753	

DATE MAILED: 10/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/836,452	REIMER, KARL	
	Examiner	Art Unit	
	Edna Wong	1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 September 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-98,101-115 and 119-135* is/are pending in the application.

4a) Of the above claim(s) *1-91* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *92-98,101-115 and 119-135* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

This is in response to the Amendment dated September 8, 2004. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Response to Arguments

Claim Objections

Claims **103, 119, 122 and 124** have been objected to because of minor informalities.

The objection of claims 103, 119, 122 and 124 has been withdrawn in view of Applicant's amendment.

Claim Rejections - 35 USC § 112

I. Claim **124** has been rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The rejection of claim 124 under 35 U.S.C. 112, first paragraph, has been withdrawn in view of Applicant's amendment.

II. Claims **111 and 112** have been rejected under 35 U.S.C. 112, first paragraph,

because the specification, while being enabling for exposing the substrate to an infrared radiation source *prior to or during* the exposing step, does not reasonably provide enablement for exposing the substrate to an infrared radiation source *after* the exposing step. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims.

The rejection of claims 111 and 112 under 35 U.S.C. 112, first paragraph, has been withdrawn in view of Applicants' amendment.

III. Claims **98-102, 107, 112, 115, 119-120 and 124** have been rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The rejection of claims 98-102, 107, 112, 115, 119-120 and 124 rejected under 35 U.S.C. 112, second paragraph, has been withdrawn in view of Applicant's amendment.

Claim Rejections - 35 USC § 103

I. Claims **92-114** have been rejected under 35 U.S.C. 103(a) as being unpatentable over **Elliott et al.** (US Patent No. 5,669,979).

The rejection of claims 92-144 under 35 U.S.C. 103(a) as being unpatentable

over Elliott et al. has been withdrawn in view of Applicant's amendment.

II. Claims **121-124** have been rejected under 35 U.S.C. 103(a) as being unpatentable over **Elliott et al.** (US Patent No. 5,669,979).

The rejection of claims 121-124 under 35 U.S.C. 103(a) as being unpatentable over Elliott et al. has been withdrawn in view of Applicant's amendment.

Response to Amendment

Election/Restrictions

This application contains claims **1-91** drawn to an invention nonelected with traverse in the telephone election on May 9, 2003. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Specification

The disclosure is objected to because of the following informalities:

page 1, line 2, the word "priority" should be amended to the word -- benefit --.

Appropriate correction is required.

Claim Objections

Claim **119** is objected to because of the following informalities:

Claim 119

line 2, the word "of" should be deleted.

Claim Rejections - 35 USC § 112

Claims **92-98, 101-114, 122-127, 132 and 134** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 92

line 6, it appears that "a material" is the same as that recited in claim 92, line 2. However, it is unclear if it is.

Claim 122

line 2, it appears that "a material" is the same as that recited in claim 121, line 2. However, it is unclear if it is.

Claim 124

line 4, "the first gas stream" lacks antecedent basis.

Claim 132

lines 1-2, it appears that "a material" is the same as that recited in claim 128, lines 1-2. However, it is unclear if it is.

line 2, "the polymer substrate" lacks antecedent basis.

Claim 134

line 2, "the conveyor system" lacks antecedent basis.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

I. Claims **92, 95-96, 98, 101, 103, 107 and 111-114** are rejected under 35 U.S.C. 102(b) as being anticipated by **Cates et al.** (US Patent No. 5,512,123).

Cates teaches a method of preparing a substrate **16** (= metal or organic structures) [col. 4, lines 43-50] for adherence of a material (= another material) [col. 3, lines 10-13] thereto, the substrate having a surface **14**, the method comprising the steps of:

(a) generating an active zone **18** using an electromagnetic radiation source **12**, and

(b) exposing the surface of said substrate to the active zone, whereby the surface of the substrate is chemically modified (= to photodecompose a thin layer

of molecular bonds forming the surface of the structure) [col. 3, lines 14-24; and col. 5, lines 53-64] for adhering a material onto said substrate by exposure to the active zone, wherein the substrate is exposed to electromagnetic radiation in the active zone including ultraviolet radiation having a wavelength in the range of about 150 nanometers to 400 nanometers (= 160-5000 nanometers) [col. 4, lines 54-56; and col. 5, lines 20-26 and lines 51-53] and wherein the step of exposing occurs at substantially ambient pressure (col. 5, lines 37-64; and Fig. 1).

The substrate includes a polymer (= thermoplastic materials) [col. 4, lines 48-50].

The intensity of said electromagnetic radiation at the surface of the substrate ranges from about 2.0 joules per square centimeter to about 5,000 joules per square centimeter (= 0.01-5.0 $J/cm^2/sec$) [col. 5, lines 60-64].

The step of exposing includes conveying (= scanning) the substrate through said active zone using a conveyor system **42** (= a computer controlled translating table) whereby the substrate is exposed to the active zone for a residence time (col. 6, line 61 to col. 7, line 4; and Fig. 2).

The method further comprises the step of evacuating the active zone in a location adjacent to the conveyor system (= a vacuum system **32**, in fluid communication with the interior of the hood **30**, collects any excess ionized gas **24** and photodecomposed organic materials liberated from the surface) [col. 6, lines 45-53; and Fig. 1].

The method further comprises the step of exposing the substrate to a discharge

24 (= an ionized gas stream) from an ionization device **26** (= an ionized gas generator) [col. 6, lines 32-43; and Fig. 1].

The ionization device is located in the active zone (Fig. 1).

The method further comprises the step of directing a gas **24** (= an ionized gas stream) over the surface of the substrate exposed to the active zone (col. 6, lines 32-43; and Fig. 1).

The gas to be injected over the surface of the substrate exposed to the active zone includes a gas selected from the group consisting of carbon tetrachloride, chloroform, halogen functionality compounds, oxygen functionality compounds, water vapor, oxygen, air, silanes, amine functionality compounds, ammonia and nitrogen (= N_2^+, N^+, O_2^+, O^+ and O^-) [col. 6, lines 32-36].

The substrate includes a composite used in aircraft and space vehicle fabrication (= painting space shuttle fuel tanks in the aerospace industry) [col. 8, lines 19-31].

The substrate includes a component used in automobile manufacturing (= bonding of polymeric auto-body panels to metal subpanels in the automotive industry) [col. 8, lines 19-31].

The electromagnetic radiation includes infra-red radiation (= 160-5000 nanometers) [col. 4, lines 54-56; and col. 5, lines 20-26 and lines 51-53].

The step of exposing includes exposing the surface of the substrate to infra-red radiation (= 160-5000 nanometers) generated by an infra-red radiation source **12**, wherein the surface of the substrate is heated by exposure to the infra-red radiation

generated by the infra-red radiation source (col. 4, lines 54-56; and col. 5, lines 20-26 and lines 51-53).

II. Claims **128-130** are rejected under 35 U.S.C. 102(b) as being anticipated by **Cates et al.** (US Patent No. 5,512,123).

Cates teaches a method of chemically modifying a substrate **16** (= metal or organic structures) [col. 4, lines 43-50] for adherence of a material (= another material) [col. 3, lines 10-13] thereto, the substrate having a surface **14**, the method comprising the steps of:

(a) generating an active zone **18** using an electromagnetic radiation source **12**, and

(b) exposing the surface of the substrate to the active zone at substantially ambient pressure, wherein the surface of the substrate is exposed to electromagnetic radiation in a range from about 0.1 joules per square centimeter to about 50,000 joules per square centimeter (= 0.01-5.0 $J/cm^2/sec$) [col. 5, lines 60-64], said electromagnetic radiation including ultraviolet radiation having a wavelength in the range of from about 150 nanometers to 400 nanometers (= 160-5000 nanometers) [col. 4, lines 54-56; and col. 5, lines 20-25 and 51-53], whereby the substrate is exposed to electromagnetic radiation sufficient to chemically modify (= to photodecompose a thin layer of molecular bonds forming the surface of the structure) [col. 3, lines 14-24; and col. 5, lines 53-64] the surface of the substrate so that adherence of the material onto the surface of the

substrate is enhanced by increasing the wettability of the surface (*inherent*).

The material is selected from the group consisting of a glue, a coating, an adhesive, a paint and a resinous compound (= paint) [col. 8, lines 19-31].

The substrate includes a polymer (= thermoplastic materials) [col. 4, lines 48-50].

The step of exposing includes conveying (= scanning) the substrate through said active zone (col. 6, line 61 to col. 7, line 4), whereby the substrate is exposed to the active zone for a residence time.

The method further comprises the step of adhering a material onto the surface of the polymer substrate for the purposed of bonding the material to the substrate (col. 3, lines 10-13) wherein the material is selected from the group consisting of a glue, a coating, an adhesive, a paint and a resinous compound (= paint) [col. 8, lines 19-31].

The method further comprises the step of evacuating the active zone adjacent to the conveyor system (= a vacuum system **32**, in fluid communication with the interior of the hood **30**, collects any excess ionized gas **24** and photodecomposed organic materials liberated from the surface) [col. 6, lines 45-53; and Fig. 1].

The method further comprises the step of exposing the substrate to additional radiation, wherein the radiation is infra-red radiation (= 160-5000 nanometers) [col. 4, lines 54-56; and col. 5, lines 20-26 and lines 51-53].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

I. Claims **93-94, 97, 102 and 104-106** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Cates et al.** (US Patent No. 5,512,123) as applied to claims 92, 95-96, 98, 101, 103, 107 and 111-114 above.

Cates is as applied above and incorporated herein.

Cates does not teach wherein said substrate includes a sole of a shoe; and wherein said substrate includes a well-plate, wherein said well-plate is used for biochemical analysis.

However, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method of Cates with wherein said substrate includes a sole of a shoe; and wherein said substrate includes a well-plate, wherein said well-plate is used for biochemical analysis because Cates teaches that the method improves the bondability of the surfaces of metal or organic structures (col. 4, lines 43-45). This would have included a sole of a shoe and a well-plate because these are organic structures.

As to wherein the intensity of said electromagnetic radiation at the surface of the

substrate ranges from about 10 joules per square centimeter to about 1000 joules per square centimeter, the intensity of the electromagnetic radiation is a result-effective variable and one skilled in the art has the skill to calculate the intensity that would determine the success of the desired reaction to occur, absent evidence to the contrary. MPEP § 2141.03 and § 2144.05(b).

Furthermore, it appears that one having ordinary skill in the art would have had the skill to adjust the intensity of the electromagnetic radiation source to radiate *a metal substrate* vs. *an organic substrate*. It does not appear that the *same intensity* would have been applied to both types of materials.

As to wherein the residence time is in a range of from about 0.1 seconds to about 10 seconds; and wherein the residence time is in a range of from about 0.2 seconds to about 5 seconds, the residence time is a result-effective variable and one skilled in the art has the skill to calculate the residence time that would determine the success of the desired reaction to occur, absent evidence to the contrary. MPEP § 2141.03 and § 2144.05(b).

As to wherein the conveyor system further includes a conveyor belt for carrying the substrate, Cates teaches scanning the surface of the structure by selective manipulation of the X-Y table, appropriate locations on the surface of the structure may be positioned within the zone of illumination of the flashlamp (col. 6, line 61 to col. 7,

line 4). It is deemed that substitution of the X-Y table with a conveyor belt would have been well within the skill of one having ordinary skill in the art because this would have depended upon the appropriate locations on the surface of the structure that are positioned within the zone of illumination.

For example, if the appropriate locations on the surface of the structure that are positioned within the zone of illumination are the same on each substrate, then placing the substrate on a conveyor belt would have been doing the same endeavor while making the method continuous.

II. Claims **108-110** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Cates et al.** (US Patent No. 5,512,123) as applied to claims 92, 95-96, 98, 101, 103, 107 and 111-114 above, and further in view of **Elliott et al.** (US Patent No. 5,669,979).

Cates is as applied above and incorporated herein.

Cates does not teach wherein the ionization device is an electro-ionization device; and wherein the method further comprises the step of circulating a gas proximate said electro-ionization device so that said gas flows over the electro-ionization device onto the substrate.

However, Elliott teaches an electro-ionization gas generator comprising circulating a gas proximate said electro-ionization device so that said gas flows

over the electro-ionization device onto the substrate (col. 12, lines 47-65).

Thus, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method of Cates with wherein the ionization device is an electro-ionization device; and wherein the method further comprises the step of circulating a gas proximate said electro-ionization device so that said gas flows over the electro-ionization device onto the substrate because Cates teaches that the ionized gas generator may be of the type manufactured by Fisher America, Inc. (col. 6, lines 42-44). The teaching of the ionized gas generators is broad and it is deemed that a conventional electro-ionization gas generator such as that taught by Elliott (col. 12, lines 47-65) would have been successfully used his method since it would have been doing the same endeavor.

III. Claims **115, 119 and 120** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Cates et al.** (US Patent No. 5,512,123).

Cates teaches a method of preparing a substrate **16** (= metal or organic structures) [col. 4, lines 43-50] for adherence of a material (= another material) [col. 3, lines 10-13] thereto, the substrate having a surface **14**, the method comprising the steps of:

(a) generating an active zone **18** at substantially atmospheric pressure using an electromagnetic radiation source **12**, wherein electromagnetic radiation

generated by said electromagnetic radiation source includes ultraviolet radiation having a wavelength in the range of about 150 nanometers to 400 nanometers (= 160-5000 nanometers) [col. 4, lines 54-56; col. 5, lines 20-26 and lines 51-53], and

(b) exposing the surface of the substrate to the electromagnetic radiation, wherein the intensity of said electromagnetic radiation at the surface of the substrate ranges from about 0.1 joules per square centimeter to about 50,000 joules per square centimeter (= 0.01 –5.0 $J/cm^2/sec$) [col. 5, lines 60-64], wherein the material is selected from the group consisting of a glue, a coating, an adhesive, a paint and a resinous compound (= paint) [col. 8, lines 19-31], whereby the surface of the substrate is chemically modified (= to photodecompose a thin layer of molecular bonds forming the surface of the structure) [col. 3, lines 14-24; and col. 5, lines 53-64] for adhering the material onto the surface of the polymer substrate by exposing the surface to said active zone (col. 5, lines 37-64; and Fig. 1); the step of exposing including conveying (= scanning) the substrate through said active zone (col. 6, line 61 to col. 7, line 4; and Fig. 2), whereby the surface of the substrate is exposed to the active zone for a residence time.

The substrate includes of a synthetic polymer (= thermoplastic materials) [col. 4, lines 48-50].

Cates does not teach wherein the residence time is in a range of from about 0.2 seconds to about 5 seconds.

However, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method of Cates with wherein the residence time is in a range of from about 0.2 seconds to about 5 seconds because the residence time is a result-effective variable and one skilled in the art has the skill to calculate the residence time that would determine the success of the desired reaction to occur, absent evidence to the contrary. MPEP § 2141.03 and § 2144.05(b).

As to wherein the substrate includes a naturally-occurring polymer, Cates teaches that the organic structures may include organic matrix composites, thermoset materials and thermoplastic materials (col. 4, lines 48-50). Cates teaching is broad, and thus, a naturally-occurring polymer would have been included as the substrate.

IV. Claims **121-123** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Cates et al.** (US Patent No. 5,512,123).

Cates teaches a method of preparing a substrate **16** (= metal or organic structures) [col. 4, lines 43-50] for adherence of a material (= another material) [col. 3, lines 10-13] thereto, the substrate having a surface **14**, the method comprising the steps of:

(a) providing a conveyor system including a conveyor **42** (= computer controlled

translating table) and an electromagnetic radiation source **12** [col. 6, line 61 to col. 7, line 4; and Fig. 2];

(b) generating an active zone **19** proximate the conveyor at substantially atmospheric pressure using the electromagnetic radiation source, wherein electromagnetic radiation generated by the electromagnetic radiation source includes ultraviolet radiation having a wavelength in the range of about 150 nanometers to 400 nanometers (= 160-5000 nanometers) [col. 4, lines 54-56; and col. 5, lines 20-26 and lines 51-53], and

(b) exposing the surface of the surface of the substrate to the electromagnetic radiation generated by the electromagnetic radiation source, wherein the intensity of said electromagnetic radiation at the surface of the substrate ranges from about 2.0 joules per square centimeter to about 5,000 joules per square centimeter (= 0.01 –5.0 $J/cm^2/sec$) [col. 5, lines 60-64], whereby the surface of the substrate is chemically modified (= to photodecompose a thin layer of molecular bonds forming the surface of the structure) [col. 3, lines 14-24; and col. 5, lines 53-64] to improve adherence of the material onto the surface of the substrate by exposing the surface to said active zone; the step of exposing including conveying (= scanning) the substrate through said active zone (col. 6, line 61 to col. 7, line 4; and Fig. 2), whereby the surface of the substrate is exposed to the active zone for a residence time (col. 5, lines 37-64; and Fig. 1).

The method further comprises the step of adhering a material onto the surface of the substrate for the purposed of bonding the material to the substrate (col. 3, lines 10-

13), wherein the material is selected from the group consisting of a glue, a coating, an adhesive. a paint and a resinous compound (= paint) [col. 8, lines 19-31].

The method further comprises the step of evacuating the active zone adjacent to the conveyor system (= a vacuum system **32**, in fluid communication with the interior of the hood **30**, collects any excess ionized gas **24** and photodecomposed organic materials liberated from the surface) [col. 6, lines 45-53; and Fig. 1].

The method further comprises the step of exposing the substrate to additional radiation, wherein the radiation is infra-red radiation (= 160-5000 nanometers) and the step of providing includes providing a conveyor system **42** (col. 6, line 61 to col. 7, line 4) further including a source of infra-red radiation **12** (col. 4, lines 54-56; and col. 5, lines 20-26 and lines 51-53).

Cates does not teach wherein the residence time is in a range of from about 0.2 seconds to about 5 seconds.

However, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method of Cates with wherein the residence time is in a range of from about 0.2 seconds to about 5 seconds because the residence time is a result-effective variable and one skilled in the art has the skill to calculate the residence time that would determine the success of the desired reaction to occur, absent evidence to the contrary. MPEP §

2141.03 and § 2144.05(b).

V. Claims **124-127** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Cates et al.** (US Patent No. 5,512,123) as applied to claims 121-123 above, and further in view of **Elliott et al.** (US Patent No. 5,669,979).

Cates is as applied above and incorporated herein.

Cates does not teach wherein the method further comprises the steps of exposing the surface of the substrate to an ionized discharge generated by an electro-ionization device, and circulating a gas stream past the electro-ionization device so that the first gas stream flows past the electro-ionization device and onto the surface of the substrate; wherein the step of providing includes providing a conveyor system further including an electro-ionizing device.

However, Elliott teaches an electro-ionization gas generator comprising circulating a gas proximate said electro-ionization device so that said gas flows over the electro-ionization device onto the substrate (col. 12, lines 47-65).

Thus, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method of Cates with wherein the method further comprises the steps of exposing the surface of the

substrate to an ionized discharge generated by an electro-ionization device, and circulating a gas stream past the electro-ionization device so that the first gas stream flows past the electro-ionization device and onto the surface of the substrate; wherein the step of providing includes providing a conveyor system further including an electro-ionizing device because Cates teaches that the ionized gas generator may be of the type manufactured by Fisher America, Inc. (col. 6, lines 42-44). The teaching of the ionized gas generators is broad and it is deemed that a conventional electro-ionization gas generator such as that taught by Elliott (col. 12, lines 47-65) would have been successfully used his method since it would have been doing the same endeavor.

VI. Claims **131-135** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Cates et al.** (US Patent No. 5,512,123) as applied to claims 128-130 above, and further in view of **Elliott et al.** (US Patent No. 5,669,979).

Cates is as applied above and incorporated herein.

Cates does not teach wherein the residence time is in a range of from about 0.2 seconds to about 5 seconds.

However, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method of Cates with wherein the residence time is in a range of from about 0.2 seconds to

about 5 seconds because the residence time is a result-effective variable and one skilled in the art has the skill to calculate the residence time that would determine the success of the desired reaction to occur, absent evidence to the contrary. MPEP § 2141.03 and § 2144.05(b).

As to wherein the method further comprises the steps of exposing the surface of the substrate to an ionized discharge generated by an electro-ionization device; and circulating a first gas stream past the electro-ionization device so that the first gas stream flows past the electro-ionization device and onto the surface of the substrate, Elliott teaches an electro-ionization gas generator comprising circulating a gas approximate said electro-ionization device so that said gas flows over the electro-ionization device onto the substrate (col. 12, lines 47-65).

Cates teaches that the ionized gas generator may be of the type manufactured by Fisher America, Inc. (col. 6, lines 42-44). The teaching of the ionized gas generator is broad and it is deemed that a conventional electro-ionization gas generator such as that taught by Elliott (col. 12, lines 47-65) would have been successfully used his method since it would have been doing the same endeavor.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37

CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edna Wong whose telephone number is (571) 272-1349. The examiner can normally be reached on Mon-Fri 7:30 am to 3:30 pm, Flex Schedule.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Edna Wong
Primary Examiner
Art Unit 1753

EW
October 12, 2004